

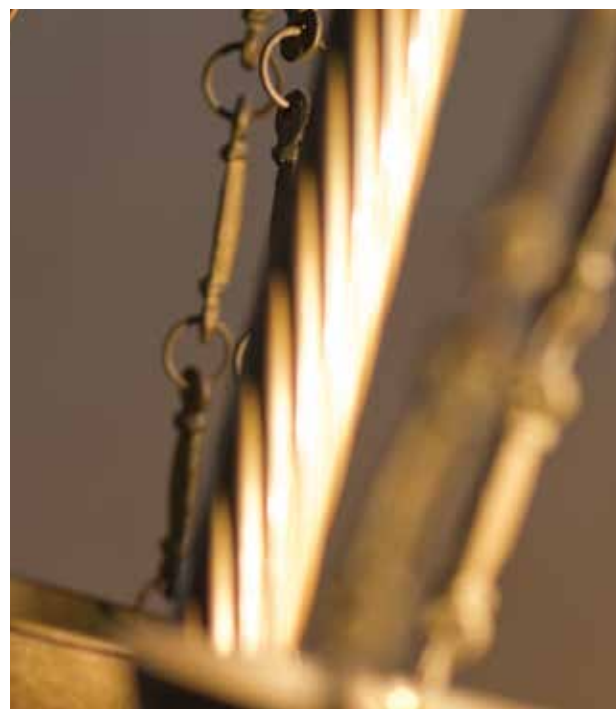
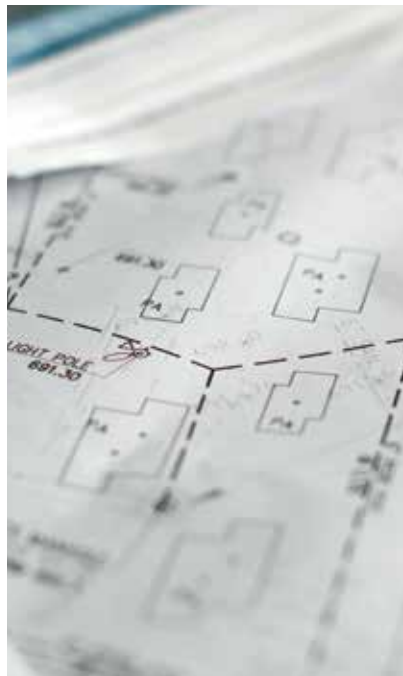
THINK AHEAD

2011-2012 Annual Report



CASE WESTERN RESERVE
UNIVERSITY EST. 1826

think beyond the possible™



To the Case Western Reserve Community:

Ours is a campus full of people driven to make a difference. Whether pursuing a cure for Alzheimer's or prosecuting pirates on the high seas, our faculty, staff, and students strive for impact. They translate discoveries about nature into state-of-the-art technology. They turn insights about oral health into answers to orthopedic issues. They even use irritation about a common car problem as fuel for a promising product.

Are we dreamers? Absolutely. But at Case Western Reserve, aspirations are only the start. Then come questions: How can we make this concept work? What tweaks will take it farther? What improvements can we add?

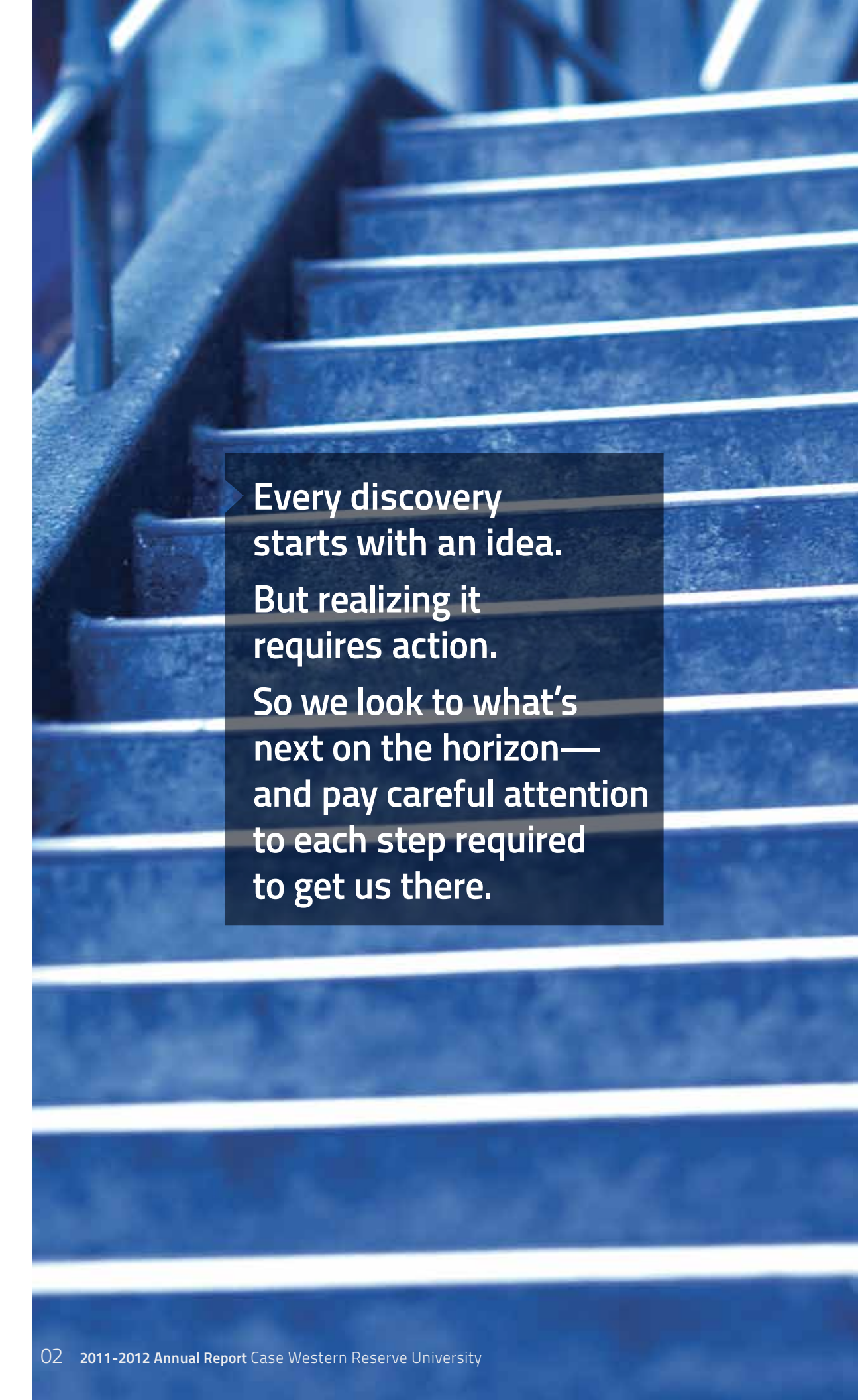
As Gmail inventor Paul Buchheit ('98) told our 2012 graduates, the correct path may not be the one everyone else identifies. Sometimes the answer involves forging through unfamiliar trails. In such instances, the key is not only to listen to instincts, but follow them.

In 2011-2012, that spirit spurred Celia Weatherhead to announce that she and her late husband, Albert, had committed \$50 million to our university to advance management education and community health. It led an anonymous donor to commit \$20 million for our programs in the natural sciences. And it prompted trustee Larry Sears and his wife, Sally Zlotnik Sears, to contribute \$5 million to think[box], a campus initiative to encourage entrepreneurial innovation.

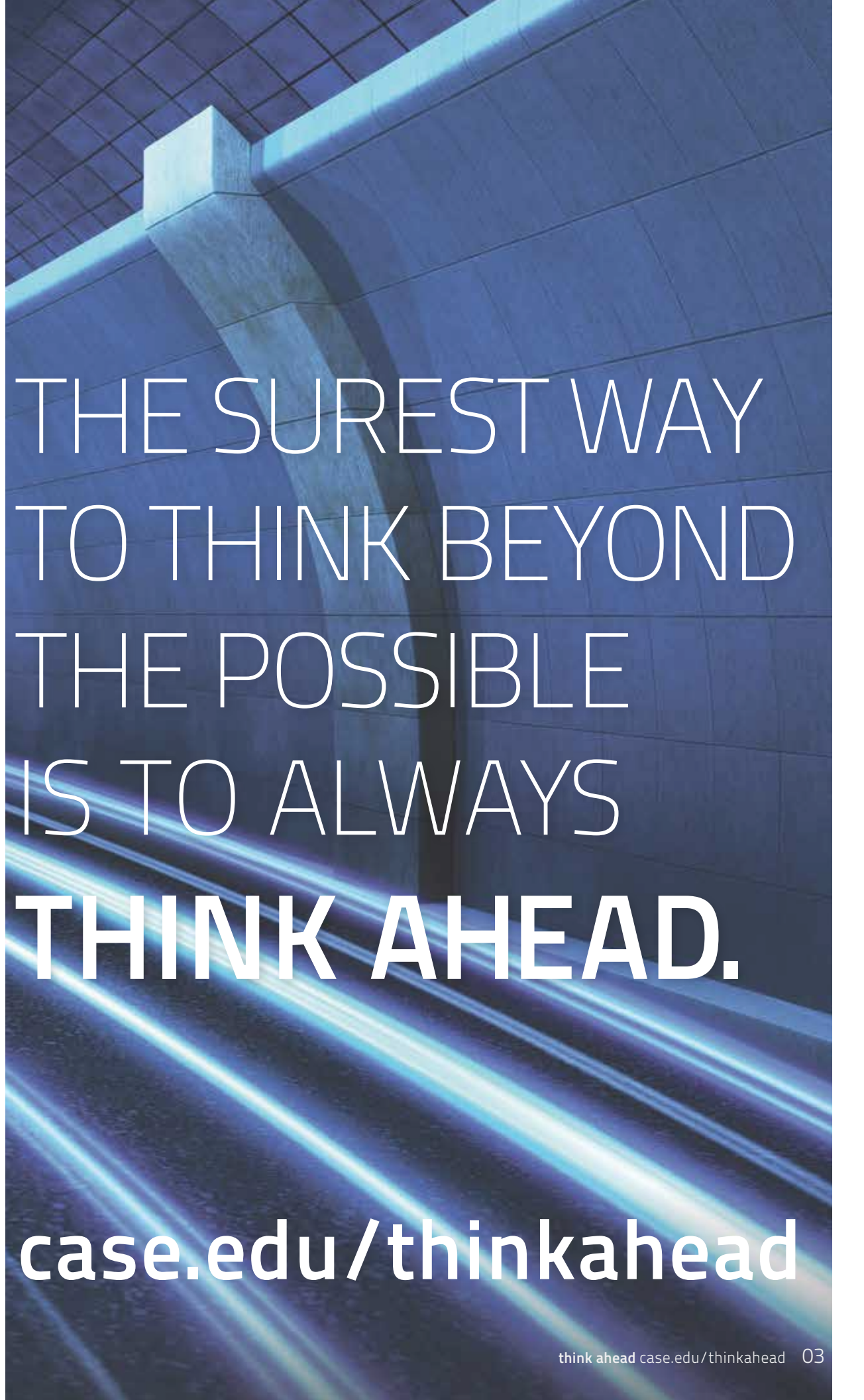
Such support inspires us all. It also helps attract still more like-minded achievers. The undergraduate class we admitted this spring represents the largest, most diverse and most academically accomplished in our university's history. They enter with extraordinary achievements, and we can't wait to see what they do next.

For now, though, I encourage you to take a look back at last year—and see how we think ahead.

Barbara R. Snyder
Barbara R. Snyder, PRESIDENT



▶ Every discovery starts with an idea. But realizing it requires action. So we look to what's next on the horizon—and pay careful attention to each step required to get us there.




THE SUREST WAY
TO THINK BEYOND
THE POSSIBLE
IS TO ALWAYS
THINK AHEAD.

case.edu/thinkahead



FAST-TRACKED TREATMENTS

**We think a cancer drug could
beat yet another disease.**



When professor Gary Landreth, PhD, and researcher Paige Cramer, PhD, pondered how they could change the futures of people with Alzheimer's disease, they looked to the past.

Creating a brand-new drug would require decades of testing before it could become widely available. But if a pre-existing medication proved to be a chemical match for their needs, the path to patients would be much shorter.

So Cramer, then a doctoral student, combed through existing medications and zeroed in on bexarotene, a drug the Food & Drug Administration already approved to treat skin cancer.

Tests on mice proved promising: Within days, bexarotene eliminated the plaque believed to be responsible for Alzheimer's and reversed some cognitive symptoms of the disease.

Whether the drug will have the same result in humans is yet to be seen. But even the promise of an answer for Alzheimer's represents an impressive opening move.

A NEW HUB

We think a center space will enhance our community.

At Case Western Reserve, we're always breaking new ground.

This year, we did it literally.

Construction began in May on the Tinkham Veale University Center, a \$50 million project that will offer a state-of-the-art space for the entire campus community to come together.

Designed to meet LEED Silver standards, the 82,000-square-foot university center is expected to open in 2014 and will include dining areas, a ballroom and spaces for more than 160 student organizations.


Veale, a 1937 alumnus who passed away this fall, envisioned the center as a place where people from all academic disciplines could gather and get to know one another.

"It's going to be great," he said. We agree.



A SMOOTHER RIDE

**We think a shifty
substance can
patch potholes.**



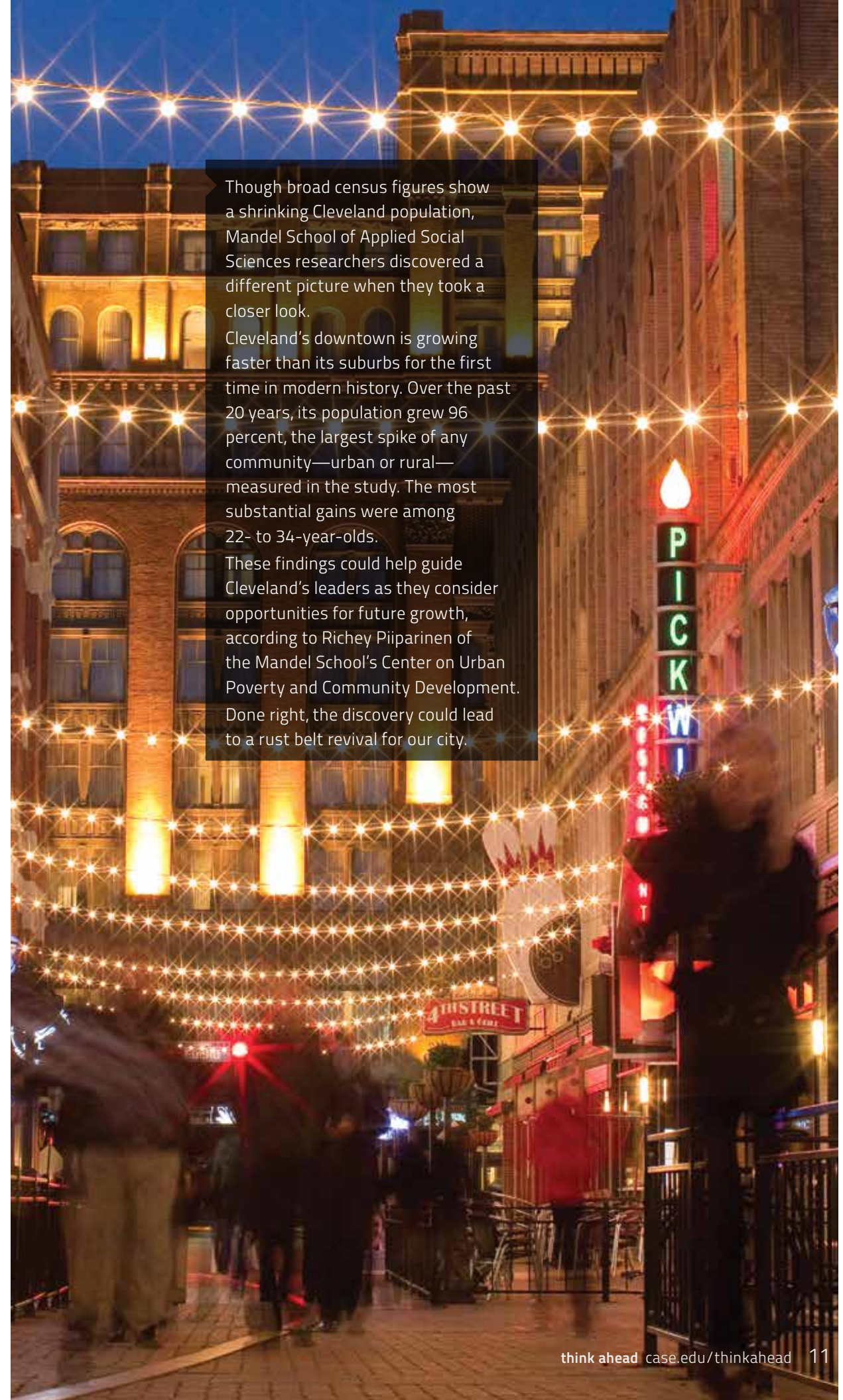
Potholes: the road warrior's worst enemy. A nice, even avenue suddenly opens to an abyss, sucking a car's tires into it. Whether the result is a bumpy ride or a broken axle, the dips and divots inevitably annoy—and can cost loads to repair.

Rather than curse road chasms, Case Western Reserve students invented a new solution. It has the potential to turn the hot and smelly work of pothole patching into an effort as easy as stuffing a pillow. The students pour a secret recipe into a waterproof bag and place it in a pothole. The material behaves like a liquid until pressure's applied, then hardens.

Their project-turned-product, Hole Patch, has won design contests, more than \$40,000 in grant and prize money and the interest of investors around the world. The student inventors hope to see the solution smoothing city streets before the end of 2013.

URBAN REVIVAL

We think great research
can help grow our city.



Though broad census figures show a shrinking Cleveland population, Mandel School of Applied Social Sciences researchers discovered a different picture when they took a closer look. Cleveland's downtown is growing faster than its suburbs for the first time in modern history. Over the past 20 years, its population grew 96 percent, the largest spike of any community—urban or rural—measured in the study. The most substantial gains were among 22- to 34-year-olds. These findings could help guide Cleveland's leaders as they consider opportunities for future growth, according to Richey Piiparinen of the Mandel School's Center on Urban Poverty and Community Development. Done right, the discovery could lead to a rust belt revival for our city.



NATURAL LESSONS

**We think tiny creatures can
teach us flight—and more.**



To build an unbeatable mini-plane, researchers at Case Western Reserve turned to one of nature's most modest creatures: the moth.

With a six-inch wingspan, moths fly fast, make sharp turns, dive, hover and soar backward, feats that small man-made vehicles regularly flub. Through collaborations with the U.S. Air Force, our researchers are building actual fly-on-the-wall spies.

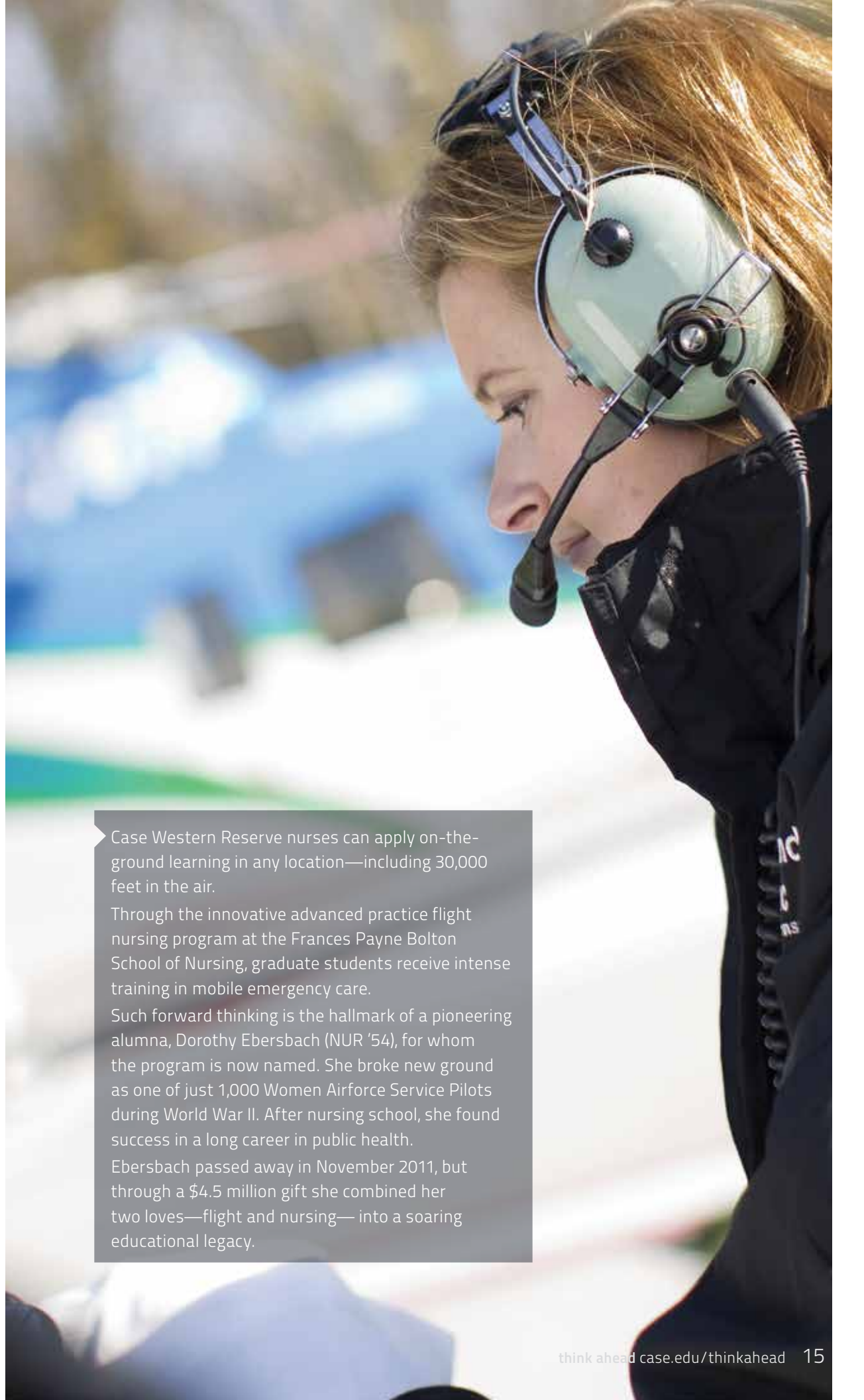
The moth isn't the only tiny creature to inspire, though. Scientists also discovered that an insect's body chemistry can be converted to electricity. Others are testing artificial nervous systems modeled after those of cockroaches. And a third team is creating an earthworm robot that can creep through water mains to search for leaks.

Sometimes the best way to make a big breakthrough is leave the lab—and see what's outside in an entirely new light.



CRITICAL CARE, ANYWHERE

**We think patients
needn't wait to get to
the hospital for help.**



Case Western Reserve nurses can apply on-the-ground learning in any location—including 30,000 feet in the air.

Through the innovative advanced practice flight nursing program at the Frances Payne Bolton School of Nursing, graduate students receive intense training in mobile emergency care.

Such forward thinking is the hallmark of a pioneering alumna, Dorothy Ebersbach (NUR '54), for whom the program is now named. She broke new ground as one of just 1,000 Women Airforce Service Pilots during World War II. After nursing school, she found success in a long career in public health.

Ebersbach passed away in November 2011, but through a \$4.5 million gift she combined her two loves—flight and nursing—into a soaring educational legacy.



WHOLE-BODY WELL-BEING

We think brighter smiles mean stronger joints.



A clean mouth could lead to a spotless bill of health—from head to toe. Led by professor Nabil Bissada, DDS, MSD, School of Dental Medicine researchers found the plaque that causes gum disease shares the same DNA as the bacteria in the fluid that lubricates hip and knee joints. The scientists suspect these bacteria could be the cause of joint failures in patients who have gum disease but whose joints are not infected.


How, exactly, does the bacteria get from the mouth to the joints? Plaque buildup and gum disease break down the pockets around the teeth. Inflammation opens the floodgates, allowing oral bacteria to invade the bloodstream.

Dental researchers will study the trend to see if treating gum disease reduces the need for joint replacements—keeping you on your feet longer.



SAFER SEAS

We think law
classrooms
can create
calmer waters.



Cannonballs and swords used to be the weapons that sank pirates. Now, legal memos alone can level the seafaring swashbucklers.

Professor Michael Scharf, JD, led a delegation of experts to the Seychelles Islands, a remote archipelago off the eastern coast of Africa. With help from the United Nations, the Seychelles government created a regional piracy court to prosecute captured Somali pirates who, in 2011 alone, seized more than 50 vessels and held more than 1,000 people hostage.

Under Scharf's supervision, our law students drafted a dozen memos to assist the United Nations and the Seychelles government. The prosecutors called the student and faculty contributions "crucial to the future success of the piracy prosecutions."

EDUCATION ABROAD

**We think global business
is best understood beyond
our borders.**

An increasingly global, constantly connected culture demands leaders comfortable working all over the world. Preparing business students for this new reality requires more than tests and papers. It calls for a different approach: an MBA program that puts students in three different countries during the course of their studies.

Weatherhead School of Management leaders developed the global MBA program with the School of Economics and Management at Tongji University in Shanghai, China, and the Xavier Labour Relations Institute in Jamshedpur, India.


The initiative brings together 20 students from each school into an international cohort that travels the world together for almost two years, living in and learning from each other's cultures and working with global companies.

Students spend the final semester at their home institutions, before embarking on careers likely to take them anywhere they'd like to go.



BUILDING OUR HOME

**We think one of the
trendiest colleges should
have a hip new hangout.**




Uptown is the new downtown. So said *The New York Times* about our rapidly expanding neighborhood. Restaurants. Nightlife. Shops. We have it all. But not long ago, Uptown was no more than an intriguing idea. It took years of dedication from individuals, businesses, city leaders and the university itself to turn blueprints into buildings. Now, Uptown is one of the city's most diverse and exciting enclaves. On one end stands Toby's Plaza, a dynamic open space made possible by the commitment of alumna Toby Devan Lewis, adjacent to the new Museum of Contemporary Art Cleveland. On the other is a bookstore and grocery, with retail outlets and restaurants in between them. Uptown adds to University Circle's rich culture and creates an even more exhilarating, inviting neighborhood. And to think: it all began with a plan.



WHAT'S NEXT

**We think about what
our new students
will achieve.**



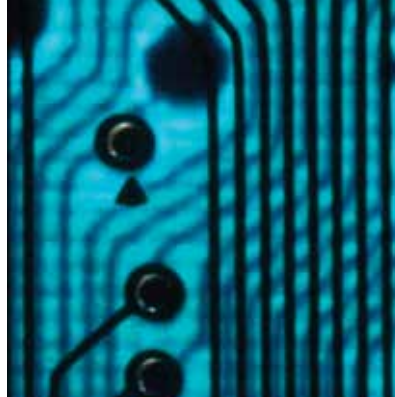
When *The Huffington Post* called us one of the nation's "trendiest colleges," the buzz started a snowball effect that in 2012 brought our largest, most diverse and most accomplished first-year class ever. The group includes nationally ranked athletes and budding entrepreneurs. Published authors and Carnegie Hall veterans. Innovative inventors and champions of social change. Along with current faculty and students, they're taking Case Western Reserve beyond anything we'd thought possible. And they're just getting started.



As part of advancing Case Western Reserve as a national leader in education and research, the university launched its \$1 billion fundraising initiative, Forward Thinking: The Campaign for Case Western Reserve University. When the public phase debuted during BlueBash, President Barbara R. Snyder announced \$80 million in new gifts, including the single largest commitment in university history: a \$50 million pledge from the Weatherhead Foundation.



Dental faculty member Charlene Krejci, DDS, discovered that fluctuating hormones put women at higher risk for dental problems, offering one more reason to brush up on oral health. She found that hormone levels can change conditions in the mouth that allow bacteria to exacerbate certain gender-specific health issues, such as bone loss and preterm labor.



The university opened think[box] 1.0, a center devoted to entrepreneurial innovation. The first iteration of the lab—a 3,000-square-foot space with 3-D printers, laser cutters, a soldering iron and a host of other design tools—opened in January. The next step is a seven-story, 50,000-square-foot facility on campus. Think[box]'s initial launch and its future home already have received generous support, including a \$5 million pledge from university trustee Larry Sears and his wife, Sally Zlotnick Sears, and another \$5 million commitment from entrepreneurs Joseph B. Richey II and A. Malachi Mixon III—pledges that built on a \$1 million commitment made by Barry Romich (CIT '67) in 2010.



Your personality might matter as much as your appetite when it comes to your snacking habits. Psychology faculty member Julie Exline, PhD, found that people-pleasers tend to overeat in social situations—even if they're not hungry—just to keep other partygoers comfortable.



A tool to help repair the damage from multiple sclerosis could be found within a patient's body. School of Medicine researchers including professors Jeffrey Cohen, MD, Hillard Lazarus, MD, and Stanton Gerson, MD, started a clinical trial to test using a patient's own mesenchymal stem cells to treat MS. Twenty-four individuals with MS will take part in the landmark clinical trial, which is built on basic science research from the School of Medicine and College of Arts and Sciences and draws on the expertise of researchers at Cleveland Clinic and University Hospitals Seidman Cancer Center.



Graduate nursing and medical students teamed up with the Free Medical Clinic of Greater Cleveland to provide care to underserved patients in the city. Under the supervision of volunteer faculty members, the students treat walk-in patients at the new Student-Run Free Clinic two Saturdays per month. The clinic is supported by a generous grant from the Josiah Macy Jr. Foundation.



The university officially welcomed two new deans in 2011-2012: imaging expert and former biomedical engineering department chair Jeffrey L. Duerk, PhD, to the Case School of Engineering; and Mary E. Kerr, PhD, a nursing school alumna and former deputy director of the National Institute of Nursing Research at the National Institutes of Health, to the Frances Payne Bolton School of Nursing. In addition, the university announced marketing scholar and dean of Sydney, Australia's Macquarie School of Management, Robert E. Widing II, PhD, would take the helm at the Weatherhead School of Management in the fall.



Advancing adult education across Northeast Ohio, Case Western Reserve and Siegal College announced plans to combine their adult education programs by launching the Laura and Alvin Siegal Lifelong Learning Program at Case Western Reserve University. The new partnership allows for expanded classes and events around Cleveland.



When it comes to a child's well-being, the more people involved, the better, according to Mandel School of Applied Social Sciences faculty member David Crampton, PhD. He studied the Family-to-Family Initiative, in which families, teachers, community members and social service workers meet to discuss the children's needs before placing them into foster care. The study showed children are more likely to remain in a permanent home when people apply this team approach.



School of Law faculty, students and alumni helped the Special Court for Sierra Leone try former Liberian President Charles Taylor of crimes against humanity—the first time an international tribunal has convicted a head of state. In the 10 years leading up to the historic trial, law faculty and students provided research memos to the prosecution; more than 20 law students served as interns with the court; and two joined the prosecution team upon graduation from law school.



Taking an invention to market requires more than just scientific know-how; it's a complex process that demands interdisciplinary approaches. The School of Law and the Weatherhead School of Management launched Fusion, a graduate-level certificate program for JD, MBA and PhD students to learn about the commercialization of inventions from discovery to delivery.



Cleveland high school graduate Nichelle Ruffin is attending Case Western Reserve for her undergraduate and medical degrees, free of charge. As the inaugural Edwards Health Professions Pipeline Scholar, Ruffin's tuition, room, board and other expenses during her undergraduate career are covered, as are four years of tuition for medical school. Her scholarship stems from the generosity of the Joan C. Edwards Charitable Foundation's Health Professions Pipeline Program.

FINANCIAL AND STATISTICAL HIGHLIGHTS

JULY 1, 2011-JUNE 30, 2012

DEGREES AWARDED

Undergraduate	919
Masters	1,101
PhDs	182
Other Doctorates (JD, MD, DMD, DNP, DMgt, DMA)	476

DEGREES BY SCHOOL (UNDERGRADUATE AND GRADUATE)

Case School of Engineering	465
College of Arts and Sciences	712
Frances Payne Bolton School of Nursing	237
Mandel School of Applied Social Sciences	178
School of Dental Medicine	74
School of Law	229
School of Medicine	428
Weatherhead School of Management	482

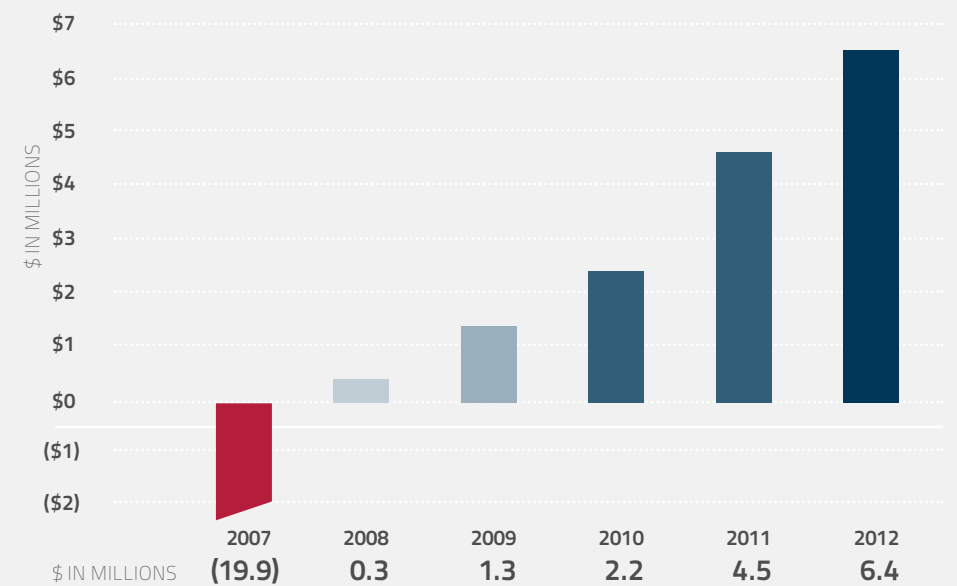
ENROLLMENT (FALL 2012)

Undergraduate	4,386
Graduate and Professional	5,640
States Represented	50
Countries Represented	92

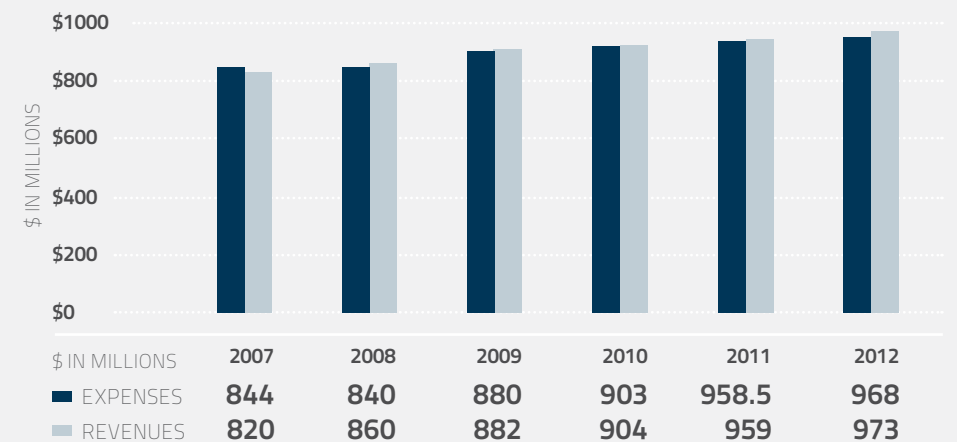
CAMPUS

Faculty (full-time)	3,055
Staff (full-time and part-time)	3,402
Campus Size	155 acres

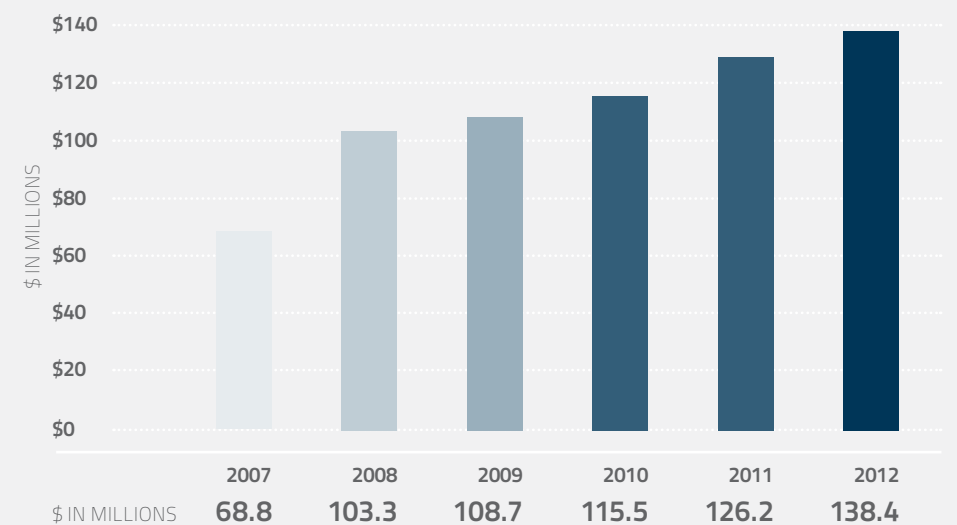
TOTAL OPERATING SURPLUS (DEFICIT) FISCAL YEARS 2007-2012



TOTAL OPERATING REVENUES AND EXPENSES FISCAL YEARS 2007-2012



GIFTS AND PLEDGES FROM PRIVATE SOURCES FISCAL YEARS 2007-2012



RESEARCH AND TECHNOLOGY HIGHLIGHTS

RESEARCH

Sponsored research projects	1,693
Sponsored research project awards	\$387.9 MILLION

2012 COMPETITIVE SPONSORED RESEARCH PROJECTS BY SPONSOR

	PROJECTS AWARDED	AWARD \$ IN MILLIONS
National Institutes of Health	637	264.5
National Science Foundation	75	11.8
NASA	23	1.9
Department of Defense	45	13.1
Other Federal Agencies	78	19.0
Industry	199	14.2
Nonprofit Foundations, Associations, Societies	590	50.3
State Government	27	11.1
Local Government	19	2.0
Total	1,693	\$387.9

All figures rounded

2010 CASE WESTERN RESERVE UNIVERSITY RESEARCH RANKINGS

R+D	18th	(Among All Private Universities)
Federal R+D	14th	

Source: National Science Foundation, Division of Science Resources Statistics, Survey of Research and Development Expenditures at Universities and Colleges, FY 2010. (Most current data.)

TECHNOLOGY TRANSFER

New intellectual property deals with industry	25
Licensing revenues	\$5.3 MILLION
New inventions	189

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AS OF JAN. 1, 2013

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Principal Photography
Additional Photography (p.23)
Cinematographer/Editor

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